

**AMENDMENTS TO THE CLAIMS:**

**In the Claims:**

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) A measuring cell comprising at least one tube capable of guiding light through a fluid in the inner volume of said at least one tube~~a fluid contained therein~~, wherein ~~[[the]]~~ said at least one tube comprises  
a first opening,  
a second opening and  
an inner surface coated with at least one binding agent capable of binding at least one target introduced into said at least one tube~~from a sample~~,  
~~wherein the inner surface of the at least one tube is exposed to said sample by loading said sample through the first opening into said at least one tube.~~
2. (Currently Amended) The measuring cell of claim 1., wherein the fluid ~~and the sample~~ is~~are independently~~ liquid or gaseous.
3. (Currently Amended) The measuring cell of claim 1., wherein the flow~~[[s]]~~ of the fluid ~~and the sample~~ is~~are~~ regulated.
4. (Currently Amended) The measuring cell of claim 3., wherein the flow~~[[s]]~~ of the fluid ~~and the sample~~ is are regulated by at least one means chosen from pressure gravity, capillary forces, and electrophoresis.
5. (Currently Amended) The measuring cell of claim 1., wherein the ability of the at least one tube to guide light through a fluid in the inner volume of said

~~contained within the~~ at least one tube is due to the structure of the inner surface of the at least one tube.

6. (Previously Presented) The measuring cell of claim 1., wherein the inner surface of the at least one tube comprises one or more layers chosen from organic materials and inorganic materials.
7. (Currently Amended) The measuring cell of claim 1., further comprising a material surrounding the at least one tube, which material or its structure resulting in the at least one tube guiding light through a fluid in the inner volume of said ~~contained within the~~ at least one tube.
8. (Previously Presented) The measuring cell of claim 1., wherein the at least one tube is either a fluid core waveguide or a photonic bandgap crystal.
9. (Currently Amended) The measuring cell of claim 1., wherein the at least one binding ~~capture~~ agent is directly bound to the inner surface of the at least one tube.
10. (Currently Amended) The measuring cell of claim 1., further comprising an interstitial layer between the at least one binding ~~capture~~ agent and the inner surface of the at least one tube, wherein the interstitial layer may be a single layer or a multi-layer.
11. (Currently Amended) The measuring cell of claim 1., wherein the inner surface of the at least one tube is coated with an additional agent that prevents or retards non-specific adsorption and/or non-specific binding of the target and/or other components of the fluid ~~sample~~.

12. (Previously Presented) The measuring cell of claim 1., wherein the inner surface of the at least one tube is coated with an additional layer which interacts with the at least one bound target in such a way that it changes the properties of the light guided through the at least one tube.
13. (Currently Amended) A system comprising:
- a. at least one light emitting element;
  - b. at least one primary light connecting element;
  - c. at least one measuring cell comprising at least one tube capable of guiding light through a fluid in the inner volume of said at least one tube ~~contained therein~~, wherein ~~[[the]]~~ said at least one tube comprises
    - a first opening,
    - a second opening, and
    - an inner surface coated with at least one binding agent capable of binding at least one target introduced into said at least one tube ~~from a sample~~,~~wherein the inner surface of the at least one tube is exposed to a sample by loading the sample through the first opening, into the at least one tube and out through either the first or second opening;~~
  - d. at least one secondary light connecting element; and
  - e. at least one light detecting element ~~and~~
  - f. ~~at least one fluid dispensing element;~~
- ~~wherein the at least one fluid dispensing element dispenses the sample to the at least one measuring cell;~~
- ~~further wherein~~ the light emitted by the at least one light emitting element is transmitted into the fluid in the inner volume of said ~~contained within the at least one tube measuring cell~~ by at least one primary light connecting element;
- further wherein the light guided through the fluid in the inner volume of said ~~contained within the at least one tube measuring cell~~ is transmitted to the at

least one light detecting element by the at least one secondary light connecting element;

further wherein the amount of light or the variation of at least one property of the light detected by the at least one light detecting element relates to the amount or to a change of structure and/or properties of the at least one target bound to the at least one binding ~~capture~~ agent on the inner surface of the at least one tube of the at least one measuring cell.

14. (Previously Presented) The system of claim 13., where the at least one light emitting element is selected from:
  - a. a laser;
  - b. a Light Emitting Diode;
  - c. a white light source and
  - d. a Vertical Cavity Surface Emitting Laser.
15. (Previously Presented) The system of claim 13., where the at least one light emitting element is a combination or an array of elements selected from
  - a. a laser;
  - b. a Light Emitting Diode;
  - c. a white light source and
  - d. a Vertical Cavity Surface Emitting Laser.
16. (Previously Presented) The system of claim 13., where the at least one light detecting element is selected from
  - a. a Photomultiplier Tube;
  - b. a camera and
  - c. a photodiode.
17. (Previously Presented) The system of claim 13., where the at least one light detecting element is a combination or an array of elements selected from

- a. a Photomultiplier Tube;
  - b. a camera and
  - c. a photodiode.
18. (Previously Presented) The system of claim 13., where the at least one primary and the at least one secondary light connecting elements are independently selected from
- a. an optical window;
  - b. a lenslet array;
  - c. a spectral filter;
  - d. a partially reflecting mirror;
  - e. an intensity filter and
  - f. a grating index coupler.
19. (Currently Amended) The system of claim 13., where the at least one primary and/or at least one secondary light connecting element is also a fluid ~~liquid~~-dispensing element.
20. (Original) The system of claim 13., where the at least one primary light connecting element and/or the at least one secondary light connecting element are/is integrated into the measuring cell.
21. (Currently Amended) The system of claim 13., further comprising ~~where the~~ at least one fluid ~~liquid~~-dispensing element wherein the at least one fluid dispensing element is capable of transferring fluid ~~liquid~~ to and from the at least tube ~~one measuring cell~~.
22. (Original) The system of claim 13. further comprising at least one sample reservoir.

23. (Original) The system of claim 13. further comprising at least one disposal reservoir.
24. (Currently Amended) The system of claim 13, wherein ~~the fluid and sample,~~  
~~, are independently~~ is liquid or gaseous.
25. (Currently Amended) The system of claim 13., wherein the flow[[s]] of the fluid ~~and the sample are~~ is regulated.
26. (Currently Amended) The system of claim 13., wherein the flow[[s]] of the fluid ~~and the sample are~~ is regulated by at least one means chosen from pressure gravity capillary forces, and electrophoresis.
27. (Currently Amended) The system of claim 13., wherein the ability of the at least one tube to guide light through a fluid in the inner volume of said ~~contained within the~~ at least one tube is due to the structure of the inner surface of the at least one tube.
28. (Previously Presented) The system of claim 13., wherein the inner surface of the at least one tube comprises one or more layers, which one or more layers is chosen from organic materials and inorganic materials.
29. (Previously Presented) The system of claim 13., wherein the at least one tube is either a fluid core waveguide or a photonic bandgap crystal.
30. (Currently Amended) The system of claim 13., wherein the at least one binding ~~capture~~ agent is directly bound to the inner surface of the at least one tube.

31. (Currently Amended) The system of claim 13., further comprising an interstitial layer between the at least one binding ~~capture~~ agent and the inner surface of the at least one tube, wherein the interstitial layer may be a single layer or a multi-layer.
32. (Currently Amended) The system of claim 13., wherein the inner surface of the at least one tube of the measuring cell is coated with an additional layer that prevents or retards non-specific adsorption and/or non-specific binding of the target and/or other components of the fluid ~~sample~~.
33. (Previously Presented) The system of claim 13., wherein the inner surface of the at least one tube is coated with an additional layer which interacts with the at least one bound target in such a way that it changes the properties of the light guided through the at least one tube.
34. (Cancelled)
35. (Cancelled)
36. (Cancelled)
37. (Cancelled)
38. (Cancelled)
39. (Cancelled)
40. (Cancelled)
41. (Cancelled)

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50. (Cancelled)

51. (Cancelled)

52. (Cancelled)

53. (Cancelled)

54. (Cancelled)

55. (Currently Amended)     The measuring cell of claim 1., wherein the at least one tube comprises a material capable of guiding light through the fluid in the inner volume of ~~contained within~~ said at least one tube.



56. (Currently Amended) The measuring cell of claim 1., wherein the at least one tube comprises a material having at least one feature wherein said at least one feature is capable of guiding light through the fluid in the inner volume of ~~contained within~~ said at least one tube.
57. (Previously Presented) The measuring cell of claim 1., wherein the inner surface of the at least one tube comprises an optical coating.
58. (Currently Amended) The measuring cell of claim 57., wherein the inner surface of the at least one tube is exposed to said target ~~sample~~ by loading the a fluid comprising said target ~~sample~~ through the first opening into the at least one tube and out from either the first or the second opening.
59. (Currently Amended) The system of claim 13., further comprising a material surrounding the at least one tube, which material or its structure resulting in the at least one tube guiding light through a fluid in the inner volume of said ~~contained within the~~ at least one tube.
60. (Currently Amended) The system of claim 13., wherein the at least one tube comprises a material having at least one feature wherein said at least one feature is capable of guiding light through the fluid in the inner volume of ~~contained within~~ said at least one tube.
61. (New) The measuring cell of claim 1 wherein said at least one target is introduced into said at least one tube by loading a fluid comprising said at least one target through the first opening into said at least one tube.

62. (New) The system of claim 13., wherein said at least one target is introduced into said at least one tube by loading a fluid comprising said at least one target through the first opening into said at least one tube.